

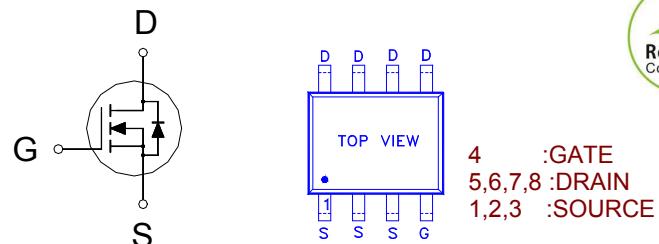
NIKO-SEM
**N-Channel Logic Level Enhancement
Mode Field Effect Transistor**
P1203BVA

SOP-8

Halogen-Free & Lead-Free

PRODUCT SUMMARY

$V_{(BR)DSS}$	$R_{DS(ON)}$	I_D
30V	12mΩ	11A

**ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$ Unless Otherwise Noted)**

PARAMETERS/TEST CONDITIONS		SYMBOL	LIMITS	UNITS
Gate-Source Voltage		V_{GS}	± 20	V
Continuous Drain Current	$T_A = 25^\circ\text{C}$	I_D	11	A
	$T_A = 70^\circ\text{C}$		7	
Pulsed Drain Current ¹		I_{DM}	40	
Avalanche Current		I_{AS}	28	
Avalanche Energy	$L = 0.1\text{mH}$	E_{AS}	40	mJ
Power Dissipation	$T_A = 25^\circ\text{C}$	P_D	2.5	W
	$T_A = 70^\circ\text{C}$		1	
Operating Junction & Storage Temperature Range		T_j, T_{stg}	-55 to 150	°C

THERMAL RESISTANCE RATINGS

THERMAL RESISTANCE	SYMBOL	TYPICAL	MAXIMUM	UNITS
Junction-to-Case	$R_{\theta JC}$		25	
Junction-to-Ambient	$R_{\theta JA}$		50	°C / W

¹Pulse width limited by maximum junction temperature.**ELECTRICAL CHARACTERISTICS ($T_J = 25^\circ\text{C}$, Unless Otherwise Noted)**

PARAMETER	SYMBOL	TEST CONDITIONS	LIMITS			UNIT
			MIN	TYP	MAX	
STATIC						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS} = 0\text{V}, I_D = 250\mu\text{A}$	30			V
Gate Threshold Voltage	$V_{GS(\text{th})}$	$V_{DS} = V_{GS}, I_D = 250\mu\text{A}$	1.2	1.5	3	
Gate-Body Leakage	I_{GSS}	$V_{DS} = 0\text{V}, V_{GS} = \pm 20\text{V}$			± 100	nA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = 24\text{V}, V_{GS} = 0\text{V}$			1	μA
		$V_{DS} = 20\text{V}, V_{GS} = 0\text{V}, T_C = 125^\circ\text{C}$			10	
On-State Drain Current ¹	$I_{D(\text{ON})}$	$V_{DS} = 10\text{V}, V_{GS} = 10\text{V}$	40			A
Drain-Source On-State Resistance ¹	$R_{DS(\text{ON})}$	$V_{GS} = 4.5\text{V}, I_D = 11\text{A}$		14	17.5	$\text{m}\Omega$
		$V_{GS} = 10\text{V}, I_D = 11\text{A}$		9.6	12	
Forward Transconductance ¹	g_{fs}	$V_{DS} = 5\text{V} I_D = 11\text{A}$		40		S

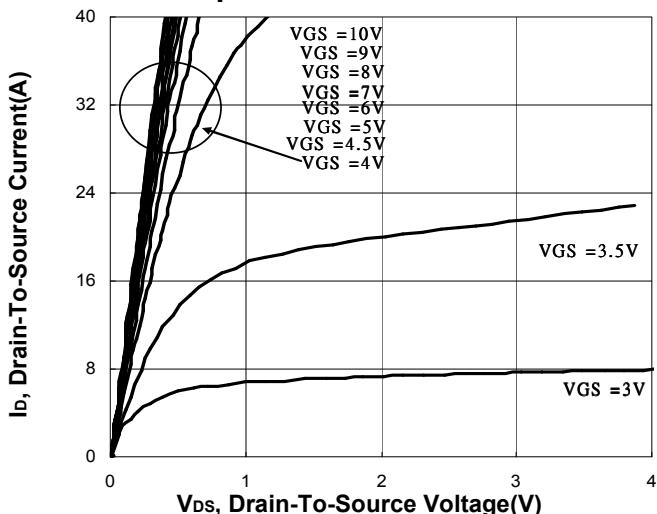
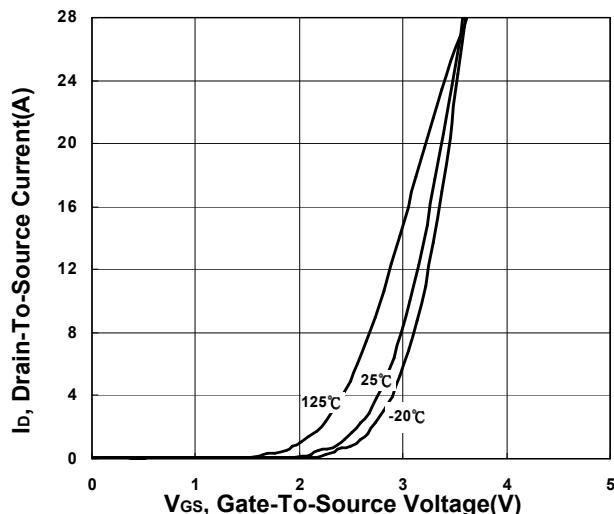
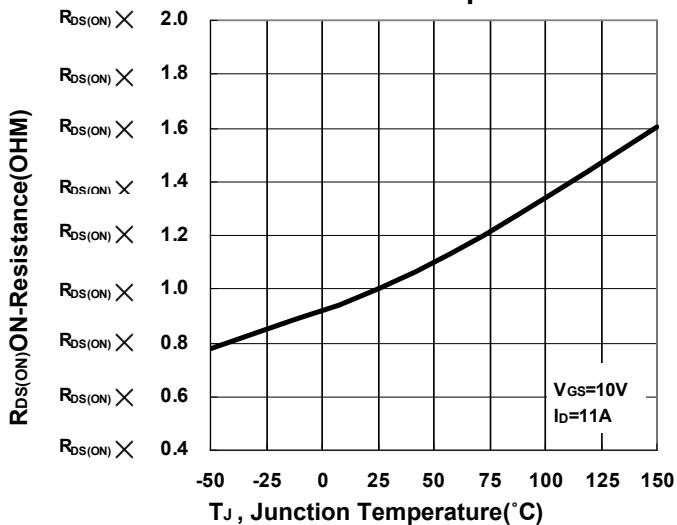
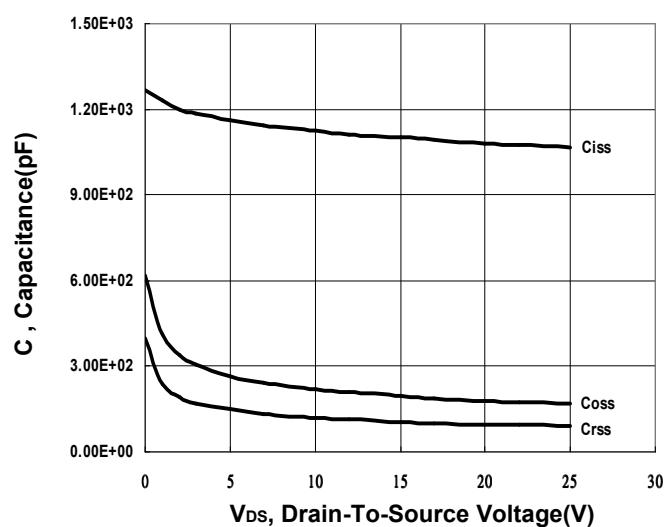
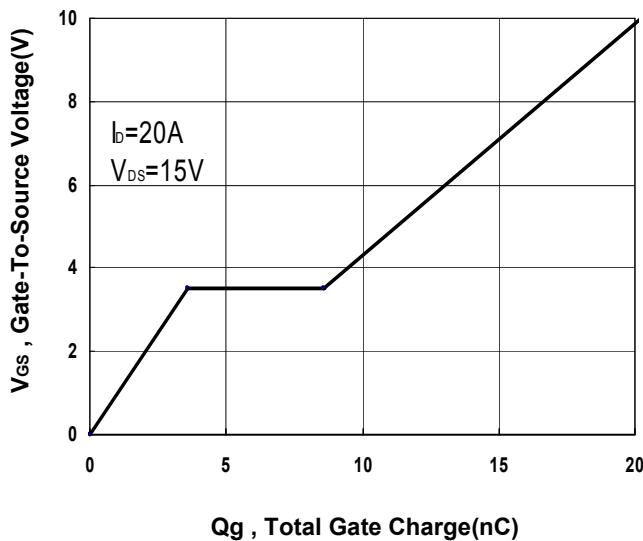
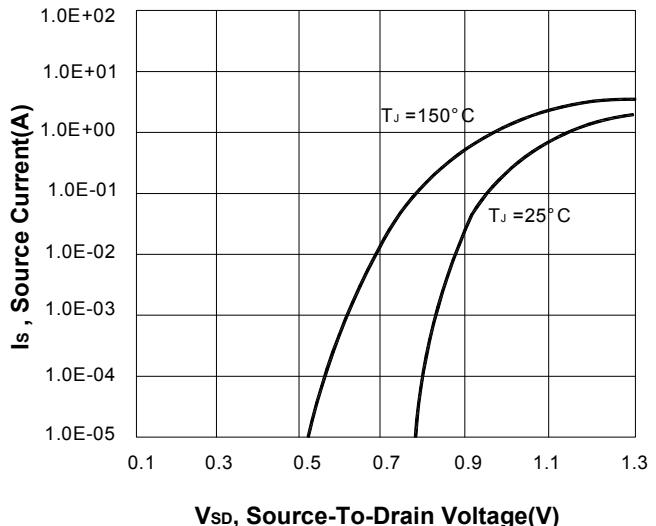
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DYNAMIC							
Input Capacitance	C_{iss}	$V_{GS} = 0V, V_{DS} = 15V, f = 1MHz$		1100			pF
Output Capacitance	C_{oss}			170			
Reverse Transfer Capacitance	C_{rss}			108			
Gate Resistance	R_G	$V_{GS} = 0V, f = 1MHz$		1.8	2.7		Ω
Total Gate Charge ²	Q_g	($V_{GS}=10V$)		21			nC
		($V_{GS}=4.5V$)		10			
Gate-Source Charge ²	Q_{gs}			3.9			
Gate-Drain Charge ²	Q_{gd}			5.3			
Turn-On Delay Time ²	$t_{d(on)}$	$V_{DS} = 0.5V_{(BR)DSS}, I_D = 11A$		12			nS
Rise Time ²	t_r			33			
Turn-Off Delay Time ²	$t_{d(off)}$			51			
Fall Time ²	t_f			25			
SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS ($T_J = 25^\circ C$)							
Continuous Current	I_S				1.9	A	
Forward Voltage ¹	V_{SD}	$I_F = 11A, V_{GS} = 0V$			1.3	V	
Reverse Recovery Time	t_{rr}	$I_F = 11 A, dI_F/dt = 100A / \mu S$		18		nS	
Reverse Recovery Charge	Q_{rr}			8		nC	

¹Pulse test : Pulse Width $\leq 300 \mu sec$, Duty Cycle $\leq 2\%$.²Independent of operating temperature.

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Halogen-Free & Lead-Free****Output Characteristics****Transfer Characteristics****On-Resistance VS Temperature****Capacitance Characteristic****Gate charge Characteristics****Source-Drain Diode Forward Voltage**

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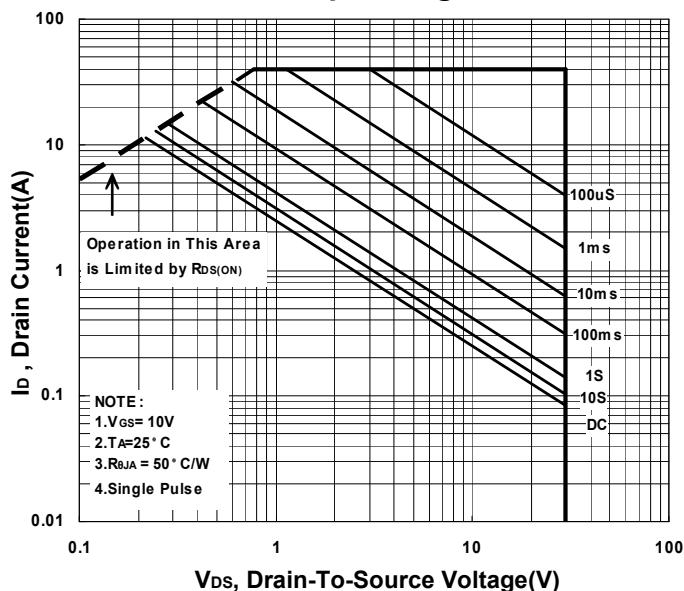
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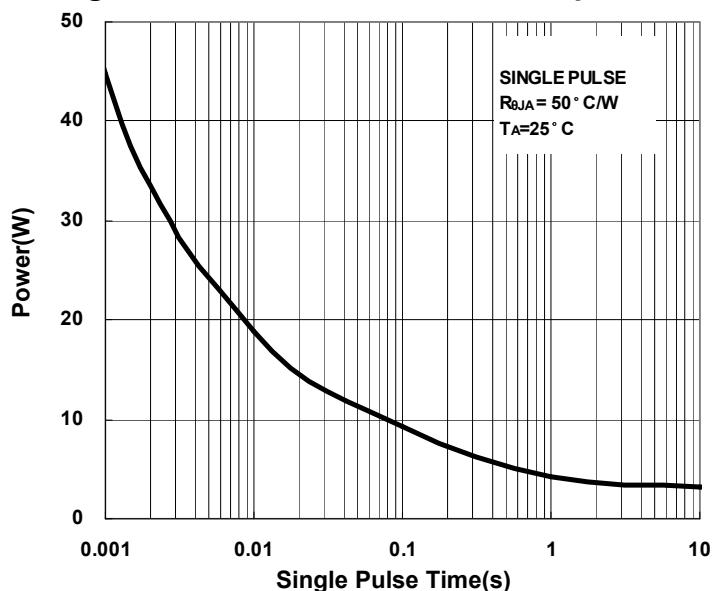
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Safe Operating Area



Single Pulse Maximum Power Dissipation



Transient Thermal Response Curve

